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PATENT ABSTRACTS OF JAPAN

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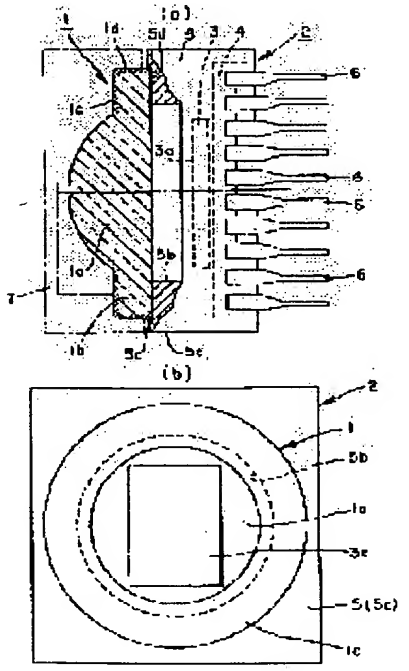
(54) ELECTRONIC IMAGE PICKUP DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide an electronic image pickup device which can be miniaturized or made compact in terms of structure.
SOLUTION: The electronic image pickup device is provided with a solid-state image pickup element 2 integrated in a case 5 and constituted so that the image of a subject is received by the light receiving part 3 of the element 2 through a lens system. An outside circumferential holder part for fitting 1b is integrally formed on a lens body 1 constituting the lens system. Besides, the lens body 1 is fitted to the fitting part 5d of the case 5 set more forward than the light receiving part 3 through the holder part 1b so that the image of the subject can be formed at the light receiving part 3.



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CLAIMS

[Claim(s)]

[Claim 1] In electronic image pick-up equipment which is equipped with a solid state image pickup device built into a case, and catches an image of a photographic subject by light sensing portion of said solid state image pickup device through a lens system The periphery electrode-holder section for mounting is formed in a lens object which constitutes said lens system at one. Electronic image pick-up equipment characterized by attaching an image of a photographic subject in said light sensing portion for said lens object possible [image formation] through said periphery electrode-holder section to a mounting area by the side of said case set up ahead rather than said light sensing portion.

[Claim 2] Electronic image pick-up equipment according to claim 1 whose mounting area by the side of said case is the surface section of a wrap protective cover about a light sensing portion within said case.

[Claim 3] Electronic image pick-up equipment according to claim 1 which said lens object was attached in said mounting area formed in a perimeter [a before / said case / side] end face, and serves a light sensing portion within said case as a wrap protective cover.

[Claim 4] Electronic image pick-up equipment given in any of claims 1-3 they are with which the periphery electrode-holder section of said lens object is being fixed by adhesion to said mounting area.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] Especially this invention relates to the electronic image pick-up equipment which used the solid state image pickup device among picture input devices.

[0002]

[Description of the Prior Art] This kind of electronic image pick-up equipment is incorporated as the image pick-up section of CCTV (Closd Circuit Television), carries out image formation of the photographic subject to the light sensing portion of solid state image pickup devices, such as CCD (charge-coupled device), through an image pick-up lens, is further transformed to an electrical signal with a solid state image pickup device, and is transmitted to control sections, such as an image processing. Drawing 4 (a) shows the outline configuration of the conventional image pick-up section, and ** (b) shows the transverse plane of a solid state image pickup device. A sign 50 is the attaching part prepared in the printed circuit board side. a solid state image pickup device 51 is attached in this attaching part 50 -- both, the image pick-up lens assembly 61 is arranged so that that solid state image pickup device 51 may be wrapped in inside.

[0003] If it furthermore explains in full detail, after three lenses, the 1st lens 62, the 2nd lens 63, and the 3rd lens 64, are attached in a lens-barrel 68 using lens holders 65 and 66 and 67 grades, the image pick-up lens assembly 61 is in the condition held in the tubed mounting 69, and is placed in a fixed position by the substrate side attaching part 50. On the other hand, the solid state image pickup device 51 is carrying out the internal organs of photo-electric-translation section 51a, the charge storage section, transfer section 51b, etc. which is a light sensing portion to the case 52 which carried out the front opening. Moreover, this solid state image pickup device 51 has the terminal 54 of protrusion salmon ****** from the both-sides wall of a case 52 to back, and is attached in the condition of having connected electrically through said terminal 54 to the substrate side attaching part 50 while it has equipped the front opening of a case 52 with the protective cover 53 (portion which carries out hatching and which is shown by the imaginary line of drawing 3) of transparence. And in the image pick-up section constituted in this way, image formation of the photographic subject is carried out through the image pick-up lens assembly 61 on the image pick-up side of photo-electric-translation section 51a in a solid state image pickup device 51. and this continues photo electric translation and a charge storage. and is outputted to a substrate side control section as an electrical signal through a terminal 54 from charge storage section and transfer section 51b.

[0004] In addition, while a solid state image pickup device 51 conquers a technical technical problem called high density and high sensitivity, improving the engine performance is being continued, for example, the small thing of 1/2 inch (L size of drawing 3 (b) is 8mm) and 1/3 (L size of drawing 3 (b) is 6mm) is also used for the size of the image pick-up side in photo-electric-translation section 51a.

[0005]

[Problem(s) to be Solved by the Invention] However, with the conventional image pick-up section structure mentioned above, even if the solid state image pickup device side was miniaturized, there was a fundamental problem that small [of the whole equipment] or miniaturization could not yet attain fully by the space by the side of an image pick-up lens. In addition, even if it makes some lens engine performance into a sacrifice depending on a use, I want to miniaturize such a problem more in many cases, although it is related also to how many lenses for example, the image pick-up lens consists of and an engine-performance side. From these people, as a result of repeating development from such a viewpoint, it came to complete this invention.

[0006] the object of this invention attains simplification of a lens system, and equipment is more small structurally by this -- it is -- carrying out -- it is in offering miniaturizable electronic image pick-up equipment. Furthermore, in the content explained below, one by one, other objects are explained and go.

[0007]

[Means for Solving the Problem] In electronic image pick-up equipment which this invention is equipped with a solid state image pickup device built into a case, and catches an image of a photographic subject by light sensing portion of said solid state image pickup device through a lens system in order to attain the above-mentioned object The periphery electrode-holder section for mounting is formed in a lens object which constitutes said lens system at one. It is using as an important section to have attached an image of a photographic subject in said light sensing portion for said lens object possible [image formation] through said periphery electrode-holder section to a mounting area by the side of said case set up ahead rather than said light sensing portion. A lens object is attached in a mounting area formed in a perimeter [a before / said case / side] end face, and you may make it serve a light sensing portion within said case as a wrap protective cover in the above this invention configuration besides attaching a light sensing portion within said case in the surface section (mounting area) of a wrap protective cover.

[0008] According to this configuration, a lens object is formed as with [for mounting] the periphery electrode-holder section, and is united with a mounting area by the side of said case through said electrode-holder section. In this case, a light sensing portion is used for a mounting area by the side of a case for the surface section (mounting area) of a wrap protective cover, or it should just enlarge some perimeter [a before / a case / side] end faces slightly as compared with elegance conventionally. Moreover, said periphery electrode-holder section can be fixed to the mounting area with simple means, such as adhesion. In addition, it is also possible to omit a protective cover (sign 53 of drawing 3) prepared in the conventional case from a lens object being attached in that front-face side, and simplification is attained by solid state image pickup device side also from this point.

[0009]

[Embodiment of the Invention] Hereafter, drawing 3 explains the suitable operation gestalt of this invention from drawing 1 . Drawing 1 shows the important section configuration of electronic photography equipment as first example of an operation gestalt of this invention, and drawing where drawing 1 (a) fractured the equipment important section, and drawing 1 (b) are the transverse planes of a

solid state image pickup device. In the electronic image pick-up equipment of this drawing, a sign 1 is a lens object which is a lens system, and signs 2 are solid state image pickup devices, such as CCD.

[0010] here , the solid state image pickup device 2 have the terminal 6 of protrusion salmon ****** from the both sides wall of a case 5 to back , and make it the same with the former at the point attach in the condition of having connect electrically through the terminal 6 to the substrate side attaching part of ****** like drawing 4 while it be carry out the internal organs of the photo electric translation section 3 and the charge storage section which arranged many pixels by high density , the transfer section 4 , etc. to the case 5 which carried out the front opening . Amelioration configurations are the point of having changed the before [a case 5] side opening configuration, and the point of omitting the protective cover arranged like drawing 4 or drawing 3 at the front-face opening of a case. That is, in the case 5 of this structure, while being in a part for nothing and a before flank about the shape of a container which carried out the front opening and forming periphery section 5a in the rectangle, inner circumference section 5b is formed in the approximate circle form. Rather than the rectangular sensitization side or image pick-up side 3a in the photo-electric-translation section 3 which is a light sensing portion, inner circumference section 5b is set as path size, and is located inside in the image pick-up side 3a. Moreover, the crevice size between inner circumference section 5b and periphery section 5a is greatly secured from the former, and 5d of level difference-like mounting areas is formed in before [this] side edge side 5c.

[0011] Moreover, said lens object 1 consists of a plastic-molding object, and it has periphery electrode-holder section 1b formed in the perimeter of effective lens section 1a at one. This periphery electrode-holder section 1b is prepared corresponding to mounting area 5b of a case 5. And this lens object 1 is attached to a solid state image pickup device 2 by one by fixing periphery electrode-holder section 1b to mounting area 5b of a case 5 through adhesives etc. while it is arranged at mounting area 5b, where it made the optical axis in agreement to image pick-up side 3a and a location broth is carried out. Moreover, it has prevented that the material for protection from light etc. is applied to 1d of peripheral faces, respectively from the front 1c side of periphery electrode-holder section 1b, and incidence of the outdoor daylight is carried out. Moreover, a sign 7 is the covering member for lenses formed in the shape of a cap by the transparent material, is engaged by pushing in to periphery electrode-holder section 1b, and is attached removable. This covering member 7 is attached if needed, and protects the lens object 1.

[0012] With the electronic image pick-up equipment constituted as mentioned above, image formation of the photographic subject is carried out through the lens object 1 on image pick-up side 3a of the photo-electric-translation section 3 in a solid state image pickup device 2, and this continues photo electric translation and a charge storage, and is outputted to a substrate side control section as an electrical signal through a terminal 6 from the charge storage section and the transfer section 4. Although this point is the same as the former, since it unites with 5d of mounting areas by which the lens object 1 was formed as with [for mounting] periphery electrode-holder section 1b, and was prepared in the case 2 through electrode-holder section 1b, a configuration is very simple and miniaturization is also attained greatly. And even if it omits the protective cover 53 of drawing 4 , since image pick-up side 3a of the photo-electric-translation section 3 is covered with the lens object 1, a problem is not produced. Also from this point, components mark and simplification are attained further.

[0013] Drawing 2 shows the important section configuration of the electronic photography equipment which transformed said example of a gestalt, and drawing where drawing 2 (a) fractured the equipment important section, and drawing 2 (b) are the transverse planes of a solid state image pickup device. In the

electronic image pick-up equipment of this drawing, the same sign is given to the same part as drawing 1 , the explanation is omitted, and only a different configuration to drawing 1 is explained in full detail. In the lens object 1 of drawing 2 , while the configuration of effective lens section 1a is changed to the structure of drawing 1 , periphery electrode-holder section 1b has the engagement section 8 formed in the rear face at one. And after the engagement section 8 has intervened adhesives etc., the lens object 1 is engaged and attached in inner circumference section 5b by the side of a case 2 while adhesion arrangement of the periphery electrode-holder section 1b is carried out at before [a case 2] side edge side 5c. In addition, the material for protection from light etc. is applied also to inner circumference 8a of the engagement section 8.

[0014] Drawing 3 shows the important section configuration of the electronic photography equipment which transformed said example of a gestalt further, and drawing where drawing 3 (a) fractured the equipment important section, and drawing 3 (b) are the transverse planes of a solid state image pickup device. In the electronic image pick-up equipment of this drawing, the same sign is given to the same part as drawing 1 , the explanation is omitted, and only a different configuration to drawing 1 is explained in full detail. The solid state image pickup device 2 of drawing 3 has equipped the front opening of a case 5 with the protective cover 9 of transparence to the structure of drawing 1 . And the lens object 1 is attached in the condition of having fixed to the surface section of the protective cover 9 soon by adhesion. Thus, application to the existing solid state image pickup device 2 of this invention is also attained by fixing soon to the wrap protective cover 9 the photo-electric-translation section 3 which is a light sensing portion about the lens object 1.

[0015] As mentioned above, the lens object 1 of this invention can be variously changed about other configurations, if the requirements of being in a case 2 side also as the mounting structure, and being soon attached ahead (a perimeter [a before / a case / side] end face and protective cover 8) rather than a light sensing portion not to mention the lens configuration are provided.

[0016]

[Effect of the Invention] If it is in the electronic image pick-up equipment of this invention as explained above, a lens object is formed as with [for mounting] the electrode-holder section, and is united with mounting areas, such as a wrap protective cover, through said periphery electrode-holder section in the perimeter [a before / a case / side] end face and light sensing portion by the side of a solid state image pickup device. Therefore, since the lens object of a lens system is soon attached in a case side, like the former, small or miniaturization is structurally attained only for a part without members, such as a lens-barrel for lens object maintenance, and MANUTO, and cost reduction is also planned. And even if it makes some lens engine performance into a sacrifice especially, it can provide in the optimal condition for a use to make it miniaturization more.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram and the front view of a solid state image pickup device in which fracturing an important section and showing the example of a gestalt of the electronic image pick-up equipment of this invention.

[Drawing 2] It is the block diagram and the front view of a solid state image pickup device in which fracturing an important section and showing other examples of a gestalt of said electronic image pick-up equipment.

[Drawing 3] It is the block diagram and the front view of a solid state image pickup device in which fracturing an important section and showing the example of a gestalt of further others of said electronic image pick-up equipment.

[Drawing 4] It is the cross section and the front view of a solid state image pickup device showing conventional electronic image pick-up equipment.

[Description of Notations]

1 Lens Object

1b Periphery electrode-holder section

2 Solid State Image Pickup Device

3 Photo-Electric-Translation Section

5 Case

5b Before side inner circumference section

5c Before side edge side

5d Mounting area

8 Engagement Section

9 Protective Cover

[Translation done.]

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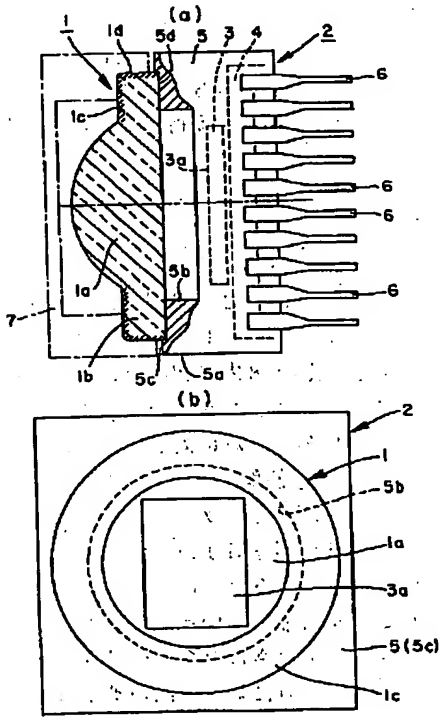
最終頁に続く

(54)【発明の名称】　電子撮像装置

(57)【要約】

【課題】　構造的に小型ないしはコンパクト化できる電子撮像装置を提供する。

【解決手段】ケース５に組み込まれた固体撮像素子２を備え、レンズ系を介して被写体の像を固体撮像素子２の受光部３でとらえる電子撮像装置において、前記レンズ系を構成するレンズ体１に取付用の外周ホルダー部１ｂを一体に形成して、受光部３よりも前方に設定されたケース５側の取付部分５ｄに対し、レンズ体１を、外周ホルダー部１ｂを介して受光部３に被写体の像を結像可能に取り付けた。



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【特許請求の範囲】

【請求項１】　ケースに組み込まれた固体撮像素子を備え、レンズ系を介して被写体の像を前記固体撮像素子の受光部でとらえる電子撮像装置において、

前記レンズ系を構成するレンズ体に取付用の外周ホルダー部を一体に形成して、前記受光部よりも前方に設定された前記ケース側の取付部分に対し、前記レンズ体を、前記外周ホルダー部を介して前記受光部に被写体の像を結像可能に取り付けたことを特徴とする電子撮像装置。

【請求項２】　前記ケース側の取付部分が、前記ケース内の受光部を覆う保護カバーの表面部である請求項１に記載の電子撮像装置。

【請求項３】　前記レンズ体が、前記ケースの前側周囲端面に形成された前記取付部分に取り付けられて、前記ケース内の受光部を覆う保護カバーを兼ねている請求項１記載の電子撮像装置。

【請求項４】　前記レンズ体の外周ホルダー部が、前記取付部分に対し接着により固定されている請求項１から３の何れかに記載の電子撮像装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、画像入力装置の内、特に、固体撮像素子を用いた電子撮像装置に関するものである。

【０００２】

【従来の技術】この種の電子撮像装置は、例えば、ＣＣＴＶ（Closd Circuit Television）の撮像部として組み込まれ、被写体を撮像レンズを通してＣＣＤ（電荷結合素子）等の固体撮像素子の受光部に結像させ、さらに固体撮像素子で電気信号に変換させて画像処理などの制御部に転送するものである。図４（ａ）はその従来の撮像部の概略構成を示し、同（ｂ）は固体撮像素子の正面を示している。符号５０はプリント基板側に設けられた保持部である。この保持部５０には、固体撮像素子５１が取り付けられるとともに、その固体撮像素子５１を内側に包みこむよう撮像レンズ組立体６１が配置されている。

【０００３】さらに詳述すると、撮像レンズ組立体６１は、第１レンズ６２，第２レンズ６３，第３レンズ６４の３つのレンズが、レンズホルダー６５，６６，６７等を用いて鏡筒６８内に組み付けられた後、筒状マウント６９内に保持された状態で、基板側保持部５０に固定配置されている。これに対し、固体撮像素子５１は、受光部である光電変換部５１ａ、電荷蓄積部や転送部５１ｂなどを前面開口したケース５２に内臓している。また、この固体撮像素子５１は、ケース５２の前面開口部に透明の保護カバー５３（図３の仮想線でハッチングして示す部分）を装着しているとともに、ケース５２の両側壁から後方へ突設させた多数の端子５４を有しており、基板側保持部５０に対して前記端子５４を介して電気的に

2

接続された状態で取り付けられる。そして、このように構成された撮像部では、被写体が撮像レンズ組立体６１を通して固体撮像素子５１における光電変換部５１ａの撮像面上に結像され、これが光電変換と電荷蓄積を続けて、電荷蓄積部および転送部５１ｂから端子５４を介して基板側制御部に電気信号として出力される。

【０００４】なお、固体撮像素子５１は、高密度と高感度という技術的課題を克服しながら性能を向上し続けており、例えば、光電変換部５１ａにおける撮像面のサイズが１／２インチ（図３（ｂ）のＬ寸法が８ｍｍ）、１／３（図３（ｂ）のＬ寸法が６ｍｍ）の小型のものも使用されている。

【０００５】

【発明が解決しようとする課題】しかしながら、上述した従来の撮像部構造では、固体撮像素子側が小型化されたとしても、撮像レンズ側のスペースによって、装置全体の小型ないしはコンパクト化が未だ充分に達成できないという基本的な問題があった。なお、このような問題は、例えば、撮像レンズが何枚のレンズで構成されているかなどの性能面とも関係するが、用途によってはレンズ性能を多少犠牲にしてもよりコンパクト化したい場合も多い。本出願人からそのような観点から開発を重ねた結果、本発明を完成させるに至った。

【０００６】本発明の目的は、レンズ系の簡略化を図り、これによって装置が構造的により小型ないしはコンパクト化できる電子撮像装置を提供することにある。さらに、他の目的は、以下に説明する内容の中で順次明らかにして行く。

【０００７】

【課題を解決するための手段】上記目的を達成するために、本発明は、ケースに組み込まれた固体撮像素子を備え、レンズ系を介して被写体の像を前記固体撮像素子の受光部でとらえる電子撮像装置において、前記レンズ系を構成するレンズ体に取付用の外周ホルダー部を一体に形成して、前記受光部よりも前方に設定された前記ケース側の取付部分に対し、前記レンズ体を、前記外周ホルダー部を介して前記受光部に被写体の像を結像可能に取り付けたことを要部としている。以上の本発明構成において、レンズ体は、前記ケース内の受光部を覆う保護カバーの表面部（取付部分）に取り付ける以外に、前記ケースの前側周囲端面に形成された取付部分に取り付けて前記ケース内の受光部を覆う保護カバーを兼ねるようにしてもよい。

【０００８】この構成によれば、レンズ体が取付用外周ホルダー部付きとして形成されて、前記ケース側の取付部分に前記ホルダー部を介して一体化される。この場合、ケース側の取付部分は、受光部を覆う保護カバーの表面部（取付部分）を利用したり、例えば、従来品に比してケース前側周囲端面を多少大きめにするだけでよい。また、前記外周ホルダー部は接着などの簡易な手段

でその取付部分に固定することが可能である。なお、固体撮像素子側は、その前面側にレンズ体が取り付けられることから、従来のケースに設けられる保護カバー（図３の符号５３）を省略することも可能であり、この点からも簡略化が図られる。

【０００９】

【発明の実施の形態】以下、本発明の好適な実施形態を図１から図３により説明する。図１は本発明の第一の実施形態例として電子撮影装置の要部構成を示し、図１（ａ）は装置要部を破断した図、図１（ｂ）は固体撮像素子の正面である。同図の電子撮像装置において、符号１はレンズ系であるレンズ体であり、符号２はＣＣＤ等の固体撮像素子である。

【００１０】ここで、固体撮像素子２は、多数の画素を高密度で配列した光電変換部３、電荷蓄積部や転送部４などを前面開口したケース５に内臓しているとともに、ケース５の両側壁から後方へ突設さけた多数の端子６を有しており、図４と同様に付図示の基板側保持部に対して端子６を介して電気的に接続された状態で取り付けられる点で従来と同じくしている。改良構成は、ケース５の前側開口形状を変更した点と、図４や図３の如くケース前面開口部に配置された保護カバーを省略している点である。即ち、この構造のケース５では、前面開口した容器状をなし、前側部分にあって、外周部５ａが矩形に形成されているとともに、内周部５ｂが略円形に形成されている。内周部５ｂは、受光部である光電変換部３における矩形の感光面ないしは撮像面３ａよりも径大に設定され、その撮像面３ａを内側に位置している。また、内周部５ｂと外周部５ａとの間の隙間寸法は従来よりも大きく確保されており、この前側端面５ｃには段差状の取付部分５ｄが形成されている。

【００１１】また、前記レンズ体１は、プラスチック成形体からなっており、有効レンズ部１ａの周囲に一体に形成された外周ホルダー部１ｂを有している。この外周ホルダー部１ｂはケース５の取付部分５ｂに対応して設けられている。そして、このレンズ体１は、撮像面３ａに対し光軸を一致させて位置だしされた状態で取付部分５ｂに配置されるとともに、外周ホルダー部１ｂをケース５の取付部分５ｂに接着剤などを介して固定することにより、固体撮像素子２に一体に組み付けられる。また、外周ホルダー部１ｂの前面１ｃ側から外周面１ｄには、遮光用の材料等がそれぞれ塗布されて、外光が入射されるのを防止している。また、符号７は透明材料でキャップ状に形成されたレンズ用カバー部材であり、外周ホルダー部１ｂに対し押し込めることにより係合されて着脱可能に取り付けられる。このカバー部材７は、必要に応じて取り付けられてレンズ体１を保護するものである。

【００１２】以上のように構成された電子撮像装置では、被写体がレンズ体１を通して固体撮像素子２における光電変換部３の撮像面３ａ上に結像され、これが光電変換と電荷蓄積を続けて、電荷蓄積部および転送部４から端子６を介して基板側制御部に電気信号として出力される。この点は従来と同じであるが、レンズ体１が取付用外周ホルダー部１ｂ付きとして形成されて、ケース２に設けられた取付部分５ｄにホルダー部１ｂを介して一体化されているので、構成が極めて簡易であり、コンパクト化も大きく達成される。しかも、図４の保護カバー５３を省略しても、光電変換部３の撮像面３ａがレンズ体１によって覆われていることから問題を生じない。この点からも、部品点数および簡略化が更に図られる。

【００１３】図２は前記形態例を変形した電子撮影装置の要部構成を示し、図２（ａ）は装置要部を破断した図、図２（ｂ）は固体撮像素子の正面である。同図の電子撮像装置において、図１と同様な部位には同じ符号を付してその説明を省略し、図１に対し異なる構成のみ詳述する。図２のレンズ体１においては、図１の構造に対し、有効レンズ部１ａの形状が変更されてるとともに、外周ホルダー部１ｂが後面に一体に形成された係合部８を有している。そして、レンズ体１は、外周ホルダー部１ｂがケース２の前側端面５ｃに密着配置されるとともに、係合部８が接着剤などを介在した状態でケース２側の内周部５ｂに係合して取り付けられている。なお、係合部８の内周８ａにも、遮光用の材料等が塗布されている。

【００１４】図３は前記形態例を更に変形した電子撮影装置の要部構成を示し、図３（ａ）は装置要部を破断した図、図３（ｂ）は固体撮像素子の正面である。同図の電子撮像装置において、図１と同様な部位には同じ符号を付してその説明を省略し、図１に対し異なる構成のみ詳述する。図３の固体撮像素子２は、図１の構造に対し、ケース５の前面開口部に透明の保護カバー９を装着している。そして、レンズ体１がその保護カバー９の表面部に接着により直に固定した状態に取り付けられている。このように、本発明は、レンズ体１を受光部である光電変換部３を覆う保護カバー９に直に固定することにより、既存の固体撮像素子２への適用も可能となる。

【００１５】以上のように、本発明のレンズ体１は、そのレンズ形状は勿論のこと、その取付構造としてもケース２側にあって受光部よりも前方（ケース前側周囲端面や保護カバー８）に直に取り付けられるという要件を具備すれば、他の構成について種々変更することができるものである。

【００１６】

【発明の効果】以上説明したとおり、本発明の電子撮像装置にあっては、レンズ体が取付用のホルダー部付きとして形成されて、固体撮像素子側のケース前側周囲端面や受光部を覆う保護カバーなどの取付部分に前記外周ホルダー部を介して一体化される。したがって、レンズ系のレンズ体はケース側に直に取り付けられることから、

従来の如くレンズ体保持用鏡筒やマンウトなどの部材が無い分だけ小型ないしはコンパクト化が構造的に達成され、コスト低減も図られる。そして、特に、レンズ性能を多少犠牲にしてもよりコンパクト化にしたい用途に最適な状態で提供できる。

【図面の簡単な説明】

【図１】本発明の電子撮像装置の形態例を要部を破断して示す構成図と固体撮像素子の正面図である。

【図２】前記電子撮像装置の他の形態例を要部を破断して示す構成図と固体撮像素子の正面図である。

【図３】前記電子撮像装置の更に他の形態例を要部を破断して示す構成図と固体撮像素子の正面図である。

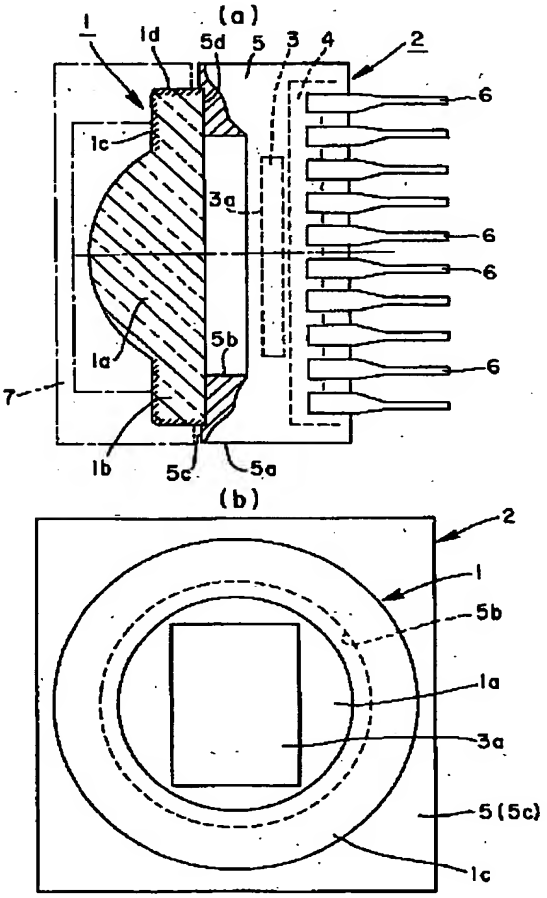
【図４】従来の電子撮像装置を示す断面図と固体撮像素

子の正面図である。

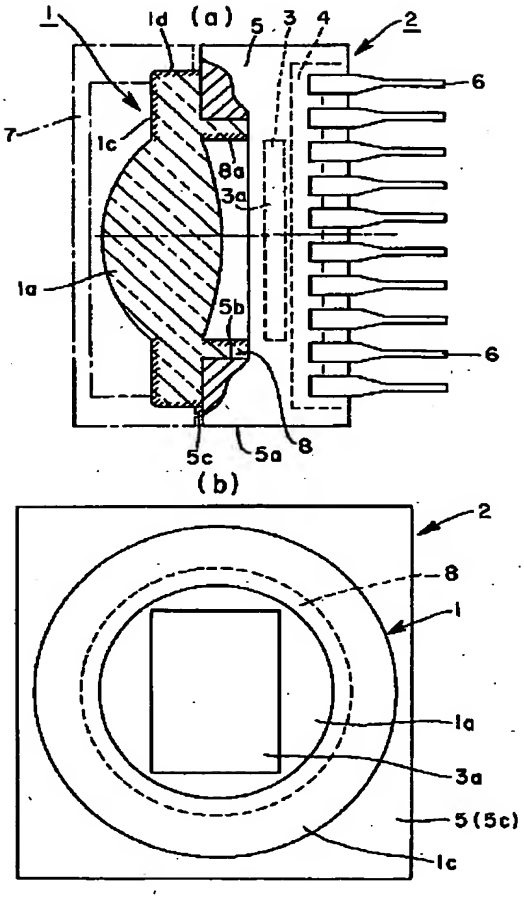
【符号の説明】

1　レンズ体
1ｂ　外周ホルダー部
2　固体撮像素子
3　光電変換部
5　ケース
5ｂ　前側内周部
5ｃ　前側端面
5ｄ　取付部分
8　係合部
9　保護カバー

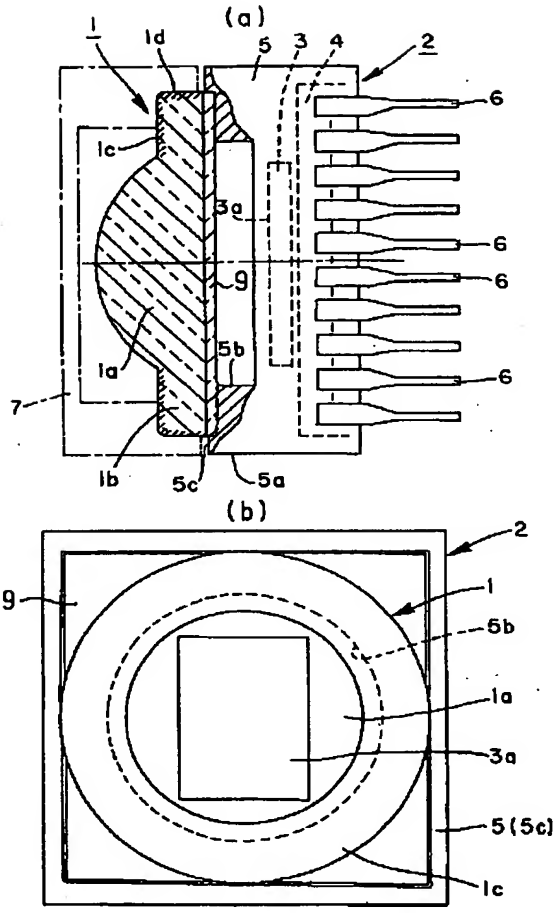
【図１】



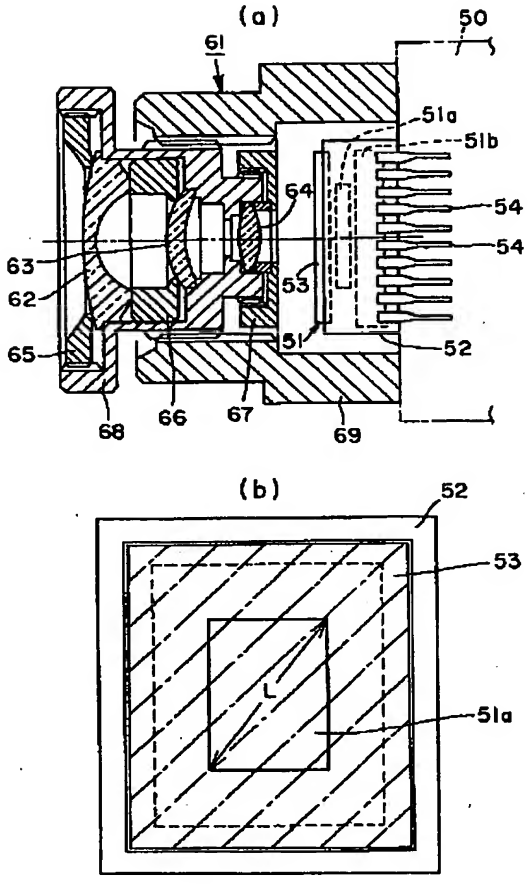
【図２】



【図３】



【図４】



フロントページの続き

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